

A multilevel investigation of factors influencing creativity in NPD teams

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Abstract

Understanding creativity in the context of a new product development (NPD) team is of paramount importance, especially in the high-technology industry where creativity is a key resource. Building on the mood-as-input model, this study examines how contextual factors (organizational support and organizational control) moderate the relationship between team affective tone and team creativity. The data collected comprise 343 sets of responses involving 106 NPD teams drawn from high-technology firms. The results of this study show that negative affective tone relates positively to team creativity when organizational support is high and organizational control is low, but the linkage between positive affective tone and team creativity as moderated by context factors is found to be insignificant. This article likewise includes research limitations, future research directions, and theoretical and managerial implications.

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1. Introduction

Tom Kelley (2001), general manager of leading design firm IDEO, said that “Discovering how to effectively create a ‘hot team’ and make it innovative is the only key to success for a company.” Moreover, Christensen (1997) in *The Innovator’s Dilemma* argues that establishing a good team directly influences the success of new products, especially in the high-technology industry. This is because new product development (NPD) success in highly competitive markets is largely dependent on teams’ generation of creative market ideas in response to rapidly changing market needs (Amabile, 1988). In prior research, there were numerous scholars who found many different factors that influence creativity in NPD teams (Im & Workman, 2004; Scott & Bruce, 1994). Correspondingly, a review of the literature suggests two potential questions for understanding these key factors.

First, scholars claim that organizations become increasingly dependent on teams when developing new products and other innovations (Bharadwaj & Menon, 2000). Despite this, past studies still present the relationship of individual-level factors

(e.g., Andrews & Smith, 1996), team-level factors (e.g., Sethi, Smith, & Park, 2001), or contextual-level factors (e.g., Im & Workman, 2004) with creativity or innovativeness. However, most of these studies discussed and examined such relationships using a higher-level measure for each unit at the lower level and then conducting analyses strictly at the lower level, or aggregating measures taken at the lower level of analysis and then conducting analyses at the higher level only (e.g., Leenders, van Engelen, & Kratzer, 2003). This practice could lead to atomistic fallacies especially if the findings were used to make inferences about team-level or higher-level relationships (Kozlowski & Klein, 2000).

Second, the identification of the cognitive and affective processes involved in the creative process is a crucial theoretical issue in the creativity of NPD teams’ research. Nevertheless, Russ (1993) argues that there has been too much focus on cognitive processes in creativity research. Many researchers and theoreticians believe that the effect of affective factors on creativity is a subject that needs further exploration (Csikszentmihalyi, 1990). Although the relationship between affective factors and creativity is a widely studied topic in the field of psychology and organizational behavior (e.g., Shalley, Zhou, & Oldham, 2004; Zhou & George, 2001), studies on such a relationship in NPD teams in the marketing literature are scarce despite the paramount importance of the issue.

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Against these backdrops, a cross-level model should be employed into which team- and contextual-level factors are integrated; likewise, it is necessary to explore the importance of the relationship between contextual factors (organizational support and organizational control) and NPD team affective tone and team creativity. This study adopts Martin and Stoner's (1996) mood-as-input model, which is particularly relevant for understanding the relationship between negative and positive affect and the creativity model (e.g., Martin, Abend, Sedikides, & Green, 1997; Martin & Stoner, 1996). This model states that people use their current affect as an informational cue and reflect its context-dependent nature in their behavior. On the basis of the mood-as-input model, this study contributes to the literature by identifying the contextual-level factors which affect the relationship between team affective tone and team creativity in an NPD team.

This study has three objectives. First, this study explores relevant literature by focusing on key variables and then deriving the hypotheses from these. Second, it uses a cross-level model to examine how contextual-level factors moderate the relationship between team affective tone and team creativity within the NPD team context. Finally, it discusses the research limitations, future research directions, and theoretical and managerial implications of the study in light of the findings.

2. Theoretical background and hypotheses

In Martin and Stoner's (1996) mood-as-input model, there is an important premise that moods provide people with information. The significance and consequences of this information depend on the organizational context in which the mood was formed. Essentially, the context provides people with cues concerning their ongoing behaviors, and the organizational context in which tasks are performed serves to define the overall objective by which people evaluate the adequacy of their efforts to date or their progress on a task (Martin & Stoner, 1996). This view provides the basic framework of this study, which means that investigating behavior (e.g., creativity) and performance should not only consider feelings (affect state) but also the context in which people experience these feelings (e.g., organizational support/ control). This allows us to focus on a relatively team affective tone as well as the contextual moderators in a context conducive for the empirical testing of our hypotheses.

2.1. Why are team affective tone and context important for team creativity?

Creativity is a complex concept that researchers define in a variety of ways (Shalley, Gilson, & Blum, 2000). According to different research approaches, creativity can be roughly given four definitions (i.e., personality, environment, product, and process). Although the terms used by scholars are different, they refer to similar concepts (e.g., Glisan & Hawes, 1990; Higgins, 1999). The current study views creativity from the process approach consistent with Amabile's (1988) study that team creativity involves the production, conceptualization, or

development of novel and useful ideas, processes, or procedures by an individual or by a team of individuals working together.

In exploring teams' creativity in the study of NPD, prior studies focused on the effects of different cognitive factors (e.g., Leenders et al., 2003), while the effects of affective factors were not adequately given attention. However, the concept of the affective state in marketing literature now calls for a broader integrative view in the workplace (Bagozzi, Gopinath, & Nyer, 1999). Previous studies suggest that the affective state consists of two separate dimensions: positive and negative. Majority of these previous studies suggest that when team members experience positive affect, their cognitive or motivational processes are enhanced, and their creative thinking and problem-solving skills are facilitated (Hirt, Levine, McDonald, & Melton, 1997). In relation to this, Isen's research consistently demonstrates that positive affect results in greater creativity and cognitive flexibility (e.g., Estrada, Isen, & Young, 1994; Isen & Daubman, 1984). However, a few studies suggest that negative affect also plays an important role in creativity (George & Zhou, 2002), although they do not seem to be related in a direct, simple, and consistent fashion (Amabile, 1996a,b; James, Clark, & Cropanzano, 1999). Obviously, no agreement has been reached from previous studies regarding the relationship between affect and creativity. In relation to this, Zhou and George (2001) theorize that under certain conditions, negative affect might be positively related to employee creativity, and they argue that negative affect is context dependent and does not automatically lead to creativity. In other words, context has a conclusive effect on the relationship between affective state and creativity.

Through the studies on contextual-level factors that affect creativity, the core constructs are no more than the support and inhibition of creativity in the organization (Amabile, 1996a,b). The development of the minivan is a case which can illustrate the importance of this point.

After the failure of the Edsel, the unwritten rule at Ford Motor Company was 'not to break the mold'. Although Ford product designers were the first to conceive of the contemporary (and very popular) minivan, the idea never went past the drawing board stage because they still gunshy with former embarrassing failure. However, when the same designers from Ford moved to Chrysler and received superordinate encouragement to pursue the idea in the face of great uncertainty, the minivan they developed turned out to be one of the most innovative and successful new products in the recent history of the automobile industry. (Sethi et al., 2001, p.78)

Context is where other teams, departments and organizations live (Hackman, 1999), and it is very important for a company to develop a context which is geared toward helping its employees. Therefore, CEOs or NPD team leaders who want their NPD teams to strive for innovative outcomes should pay attention to the organizational context as related to their NPD teams. This study considers two organizational context factors. The first is organizational support. Research indicates that employees need organizational systems and procedures to support and encourage their creative efforts (Shalley et al., 2000). Cummings and

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